

1 **CLAIMS**

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3 1. One or more computer-readable media having stored thereon a  
4 module including a plurality of instructions for execution in kernel-mode that,  
5 when executed in kernel-mode by one or more processors of a computer, causes  
6 the one or more processors to perform acts including:

7 receiving a data packet including audio data;

8 checking, based at least in part on a channel group identified in a channel  
9 group portion of the data packet, whether the data packet corresponds to a set of  
10 one or more channel groups; and

11 operating on the data packet based at least in part on a result of the  
12 checking.

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14 2. One or more computer-readable media as recited in claim 1, wherein  
15 the set of channel groups is received by the module via a set parameters interface.

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17 3. One or more computer-readable media as recited in claim 1, wherein  
18 the operating comprises forwarding the data packet to an allocator module for re-  
19 allocation of the memory space used by the data packet if the data packet  
20 corresponds to the set of channel groups.

1           4.     One or more computer-readable media as recited in claim 1, wherein  
2 the operating comprises forwarding the data packet to an allocator module for re-  
3 allocation of the memory space used by the data packet if the data packet does not  
4 correspond to the set of channel groups.

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6           5.     One or more computer-readable media as recited in claim 1, wherein  
7 the operating comprises changing a channel group identifier in the channel group  
8 portion of the data packet if the data packet corresponds to the set of channel  
9 groups.

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11           6.     One or more computer-readable media having stored thereon a  
12 module including a plurality of instructions for execution in kernel-mode that,  
13 when executed in kernel-mode by one or more processors of a computer, causes  
14 the one or more processors to perform acts including:

15                 receiving a data packet including audio data;

16                 checking which channel group the data packet corresponds to, wherein the  
17 channel group the data packet corresponds to is identified in a channel group  
18 portion of the data packet;

19                 identifying, based at least in part on the channel group, a new channel  
20 group for the data packet; and

21                 modifying the data packet to include the new channel group.  
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1           7. One or more computer-readable media as recited in claim 6, wherein  
2 a set of channel group to new channel group mappings for use in the identifying is  
3 received by the module via a set parameters interface.

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5           8. One or more computer-readable media having stored thereon a  
6 module including a plurality of instructions for execution in kernel-mode that,  
7 when executed in kernel-mode by one or more processors of a computer, causes  
8 the one or more processors to perform acts including:

9           receiving a data packet including audio data;  
10           checking which channel the audio data corresponds to;  
11           identifying, based at least in part on the channel, a new channel for the data  
12 packet; and  
13           modifying the audio data to include the new channel.

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15           9. One or more computer-readable media as recited in claim 8, wherein  
16 a set of channel to new channel mappings for use in the identifying is received by  
17 the module via a set parameters interface.

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19           10. One or more computer-readable media as recited in claim 8, wherein  
20 the plurality of instructions further cause the one or more processors to perform  
21 acts including maintaining a channel to new channel mapping, for use in the  
22 identifying, in which multiple channels can map to the same new channel and in  
23 which a single channel can map to multiple new channels.

1       **11.** One or more computer-readable media having stored thereon a  
2 module including a plurality of instructions for execution in kernel-mode that,  
3 when executed in kernel-mode by one or more processors of a computer, causes  
4 the one or more processors to perform acts including:

5       receiving a data packet including an audio data message;

6       checking a message type of the audio data message; and

7       forwarding the audio data message to an allocator module for re-allocation  
8 of the memory space used by the data packet if the message type is a particular  
9 message type.

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11       **12.** One or more computer-readable media as recited in claim 11,  
12 wherein the particular message type is received by the module via a set parameters  
13 interface.

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15       **13.** One or more computer-readable media as recited in claim 11,  
16 wherein the plurality of instructions further cause the one or more processors to  
17 perform the forwarding only if the data packet matches one or more of: a  
18 particular one or more notes, a particular one or more channels, and a particular  
19 one or more channel groups.

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21       **14.** One or more computer-readable media having stored thereon a  
22 module including a plurality of instructions for execution in kernel-mode that,  
23 when executed in kernel-mode by one or more processors of a computer, causes  
24 the one or more processors to perform acts including:

25       receiving a data packet including audio data;

1       checking which note the audio data corresponds to;  
2       identifying, based at least in part on the note, a new note for the data  
3       packet; and  
4       modifying the audio data to include the new note.

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6       **15.**   One or more computer-readable media as recited in claim 14,  
7       wherein a set of note to new note mappings for use in the identifying is received  
8       by the module via a set parameters interface.

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10       **16.**   One or more computer-readable media as recited in claim 14,  
11       wherein the plurality of instructions further cause the one or more processors to  
12       perform the modifying only if the data packet matches one or more of: a  
13       particular one or more channels, and a particular one or more channel groups.

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15       **17.**   One or more computer-readable media having stored thereon a  
16       module including a plurality of instructions for execution in kernel-mode that,  
17       when executed in kernel-mode by one or more processors of a computer, causes  
18       the one or more processors to perform acts including:

19       receiving a data packet including audio data;  
20       checking a velocity value that the audio data corresponds to;  
21       identifying, based at least in part on the velocity value, a new velocity value  
22       for the data packet; and  
23       modifying the audio data to include the new velocity value.

1       **18.** One or more computer-readable media as recited in claim 17,  
2 wherein a set of note to new velocity value mappings for use in the identifying is  
3 received by the module via a set parameters interface.

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5       **19.** One or more computer-readable media as recited in claim 17,  
6 wherein the plurality of instructions further cause the one or more processors to  
7 perform the modifying only if the data packet matches one or more of: a  
8 particular one or more notes, a particular one or more channels, and a particular  
9 one or more channel groups.

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11       **20.** One or more computer-readable media having stored thereon a  
12 module including a plurality of instructions for execution in kernel-mode that,  
13 when executed in kernel-mode by one or more processors of a computer, causes  
14 the one or more processors to perform acts including:

15       receiving a data packet including audio data;

16       checking a velocity value and a note value that the audio data corresponds  
17 to;

18       identifying, based at least in part on both the velocity value and the note  
19 value, a new velocity value and a new note value for the data packet; and

20       modifying the data packet to include both the new velocity value and the  
21 new note value.

1           **21.** One or more computer-readable media as recited in claim 20,  
2 wherein a set of input note and input velocity to output note and output velocity  
3 mappings for use in the identifying is received by the module via a set parameters  
4 interface.

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6           **22.** One or more computer-readable media having stored thereon a  
7 module including a plurality of instructions for execution in kernel-mode that,  
8 when executed in kernel-mode by one or more processors of a computer, causes  
9 the one or more processors to perform acts including:

10           receiving a data packet including audio data;  
11           checking a presentation time for the audio data; and  
12           operating on the data packet based at least in part on a result of the  
13 checking.

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15           **23.** One or more computer-readable media as recited in claim 22,  
16 wherein the operating comprises changing the presentation time to generate a  
17 swing beat.

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19           **24.** One or more computer-readable media having stored thereon a  
20 module including a plurality of instructions for execution in kernel-mode that,  
21 when executed in kernel-mode by one or more processors of a computer, causes  
22 the one or more processors to perform acts including:

23           receiving a data packet including audio data;  
24           identifying a variable amount by which the pitch of the audio data is to be  
25 altered; and

1 modifying a pitch value of the audio data by the variable amount.  
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3 25. One or more computer-readable media as recited in claim 24,  
4 wherein an indication of the amount to alter the pitch of audio data and how to  
5 vary the amount over time is received by the module via a set parameters  
6 interface.  
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8 26. One or more computer-readable media as recited in claim 24,  
9 wherein the plurality of instructions further cause the one or more processors to  
10 perform the modifying only if the data packet matches one or more of: a  
11 particular one or more notes, a particular one or more channels, and a particular  
12 one or more channel groups.  
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14 27. One or more computer-readable media having stored thereon a  
15 module including a plurality of instructions for execution in kernel-mode that,  
16 when executed in kernel-mode by one or more processors of a computer, causes  
17 the one or more processors to perform acts including:

18 receiving a data packet including audio data;

19 determining a difference between a current reference time and a  
20 presentation time of the data packet; and

21 recording the determined difference.  
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1       **28.** One or more computer-readable media as recited in claim 27,  
2 wherein the plurality of instructions further cause the one or more processors to  
3 perform acts including:

4           making a get parameters interface available to a calling component; and  
5           returning an indication of the difference the component in response to the  
6 component calling the get parameters interface.

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8       **29.** One or more computer-readable media as recited in claim 27,  
9 wherein the plurality of instructions further cause the one or more processors to  
10 perform the recording only if the data packet matches one or more of: a particular  
11 one or more notes, a particular one or more channels, and a particular one or more  
12 channel groups.